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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/551,576   | 04/10/2007  | Peter Charnock       | APLE 200003US01     | 3813             |
| 27885  | 7590        | 09/15/2011           | EXAMINER            |                  |
| FAY SHARPE LLP<br>1228 Euclid Avenue, 5th Floor<br>The Halle Building<br>Cleveland, OH 44115 |             |                      | WEINER, LAURA S     |                  |
|  |             | ART UNIT             | PAPER NUMBER        |                  |
|  |             | 1726                 |                     |                  |
|  |             | MAIL DATE            |                     | DELIVERY MODE    |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                        |                     |
|------------------------------|------------------------|---------------------|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b> |
|                              | 10/551,576             | CHARNOCK ET AL.     |
|                              | <b>Examiner</b>        | <b>Art Unit</b>     |
|                              | /Laura Weiner/         | 1726                |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1) Responsive to communication(s) filed on 08 August 2011.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

4) Claim(s) 1-26 is/are pending in the application.  
 4a) Of the above claim(s) 5,6,9,10,14-16 and 20-26 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-4,7,8,11-13 and 17-19 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

|  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| <u>Paper No(s)/Mail Date</u> _____   | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Election/Restrictions***

1. Applicant's election of a fuel cell comprising an ion-conducting polymeric material including Formula (1) cited in claim 4 where E=E'=oxygen and Ar= (iv) cited in claim 4 in the reply filed on 10-12-2010 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
2. Claims 5-6, 9-10, 14-16 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10-12-2010.
3. During a telephone conversation with Mr. Scott McCollister on March 2, 2011, a provisional election was made with traverse to prosecute the invention of Group I, claims 1-19. Therefore claims 20-26 are also withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.  
Therefore claims 1-4, 7-8, 11-13, 17-19 have examined on their merits.

### ***Response to Arguments***

4. Applicant's arguments filed 8-8-2011 have been fully considered but they are not persuasive.

The rejection of claims 1-4, 11-12, 18, 19 under 35 U.S.C. 102(b) as being anticipated by Matsuo et al. (JP 1-198624, abstract) remains because Matsuo et al. teaches a copolymer having specific two kinds of recurring units by condensing 4,4'-dihalobenzophenone expressed by Formula (1) [*teaching moieties of formula A having metal-substituted oxygen atoms*] with dihydric phenols expressed as Formula (2). The material is suitable as a material in the electronic and electrical field, etc. [*Therefore teaching an ion-conducting polymeric material which includes moieties of formula A*]. In response to applicant's arguments, the material taught by Matsuo et al. is not a polymer electrolyte membrane or a gas diffusion electrode that is because the recitation "a polymer electrolyte membrane or gas diffusion electrode" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

The rejection of claims 1-4, 7-8, 11-13, 17-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Charnock et al. (6,902,801) remains and the rejection of claims 1-4, 7-8, 11-13, 18-19 rejected under 35 U.S.C. 103(a) as being unpatentable over Bridges et al. (US 2004/0224202) remains because Charnock et al. teaches a fuel comprising a polymer electrolyte composite membrane and the specified ion-conducting polymeric material which includes moieties of formula A and Bridges et al. teaches a

fuel comprising an ion-exchange material for a polymer electrolyte membrane or gas diffusion electrode including the specified ion-conducting polymeric material which includes moieties of formula A. Applicants argue that Charnock et al. or Bridges et al. should not be used as a reference because Charnock et al. and Bridges et al. teaches that the moieties of Formula A includes para-substituted O atoms instead of the claimed meta-substituted O atoms and therefore would not be the same because the specification on page 3, lines 11-16 and Example 14 teaches this fact. The examiner did not see any evidence to this fact. Therefore, it would have been obvious to use moieties including meta-substituted O because one skilled in the art would expect similar chemical structures to exhibit similar properties.

***Claim Rejections - 35 USC § 102***

5. Claims 1-4, 11-12, 18, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Matsuo et al. (JP 1-198624, abstract).

Matsuo et al. teaches a copolymer having specific two kinds of recurring units by condensing 4,4'-dihalobenzophenone expressed by Formula (1) [*teaching moieties of formula A having metal-substituted oxygen atoms*] with dihydric phenols expressed as Formula (2). The material is suitable as a material in the electronic and electrical field, etc.

***Claim Rejections - 35 USC § 103***

6. Claims 1-4, 7-8, 11-13, 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Charnock et al. (6,902,801).

Charnock et al. teaches a fuel comprising a polymer electrolyte composite membrane. Charnock et al. teaches in columns 25-26, a composite membrane comprising an ion-conductive polymer having a moiety of formula I and/or Formula II and/or Formula III where E and E' can be O or sulfur and Ar is selected from moieties (i)\* or (i)-(x). Charnock et al. teaches that the ion-conductive polymer has the repeat unit of formulas IV, V, IV\* or V\*. Charnock et al. teaches in column 30, that the ion-conductive polymer has an equivalent weight (EW) of less than 500 g/mol. Charnock et al. teaches in columns 21-22, Example 6, that the polymers of Examples 1-5 were sulphonated by stirring each polymer in 98% sulphuric acid for 21 hours at 50 degrees C.

Charnock et al. teaches the claimed invention above except teaches that the moieties of Formula A includes para-substituted O atoms instead of the claimed meta-substituted O atoms.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use moieties including meta-substituted O because one skilled in the art would expect similar chemical structures to exhibit similar properties. *See In re Payne, 606 f.2d 303, 203 USPQ 245, 254 (CCPA 1979).* *See In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) and see In re Dillon, 919 F.2d 688, 16 USPQ2d 1897*

(*Fed. Cir. 1991*).

A *prima facie* case of obviousness may be made when chemical compounds have very close structural similarities and similar utilities. "An obviousness rejection based on similarity in chemical structure and function entails the motivation of one skilled in the art to make a claimed compound, in the expectation that compounds similar in structure will have similar properties." *In re Payne*, 606 F.2d 303, 313, 203 USPQ 245, 254 (CCPA1979). See *In re Papesch*, 315 F.2d 381, 137 USPQ 43 (CCPA 1963). Compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) or homologs (compounds differing regularly by the successive addition of the same chemical group) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977).

7. Claims 1-4, 7-8, 11-13, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bridges et al. (US 2004/0224202).

Bridges et al. teaches a fuel comprising an ion-exchange material for a polymer electrolyte membrane or gas diffusion electrode. Bridges et al. teaches in columns 15-16, that the polymer electrolyte membrane or gas diffusion electrodes includes a copolymer having the formula IV or V or IV\* or V where E and E' can be O or sulfur and Ar is selected from moieties (i)\* or (i)-(x). Bridges et al. teaches that the a first unit is sulphonated to provide ion exchange site and that the second unit of formula IV or IV\* is

crystalline. Bridges et al. teaches in columns 10-11, Example 7, that the polymers of Examples 1-6 were sulphonated by stirring each polymer in 98% sulphuric acid for 21 hours at 50 degrees C.

Bridges et al. teaches the claimed invention above except teaches that the moieties of Formula A includes para-substituted O atoms instead of the claimed meta-substituted O atoms.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use moieties including meta-substituted O because one skilled in the art would expect similar chemical structures to exhibit similar properties. See *In re Payne*, 606 F.2d 303, 203 USPQ 245, 254 (CCPA 1979). See *In re Papesch*, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) and see *In re Dillon*, 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1991).

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that such compounds possess similar properties. In re Wilder, 563 F.2d 457, 195 USPQ 426 (CCPA 1977).

***Conclusion***

**8. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to [REDACTED] whose telephone number is (571)272-1294. The examiner can normally be reached on M-H (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Laura Weiner/  
Primary Examiner  
Art Unit 1726

September 9, 2011